

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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In the Matter of)	
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Comments on Electric Power Board and City of Wilson Petition Pursuant to Section 706 of the Telecommunications Act of 1996, Seeking Preemption of State Laws Restricting the Deployment of Certain Broadband Networks.)	WCB Dockets 14-115 and 14-116
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REPLY COMMENTS OF CCG CONSULTING

I. Introduction

1. I am Doug Dawson, the President of CCG Consulting of Punta Gorda, Florida. CCG Consulting is a general telecom consulting company that has a lot of experience working with both municipal and commercial fiber providers. Our services include strategic planning, engineering, regulatory, raising money and support for numerous operational functions for broadband providers. I am responding to several comments made by parties in both Dockets 14-115 and 14-116. These comments are being filed in both dockets.

II. The Need to Protect Cities from Themselves

2. Numerous commenters made the argument that states need the ability to make laws to keep cities out of the broadband business to protect cities from failure. This concept is paternalistic and is a red herring that deflects from what is really happening in the states. The restrictions on municipal broadband competition are almost entirely due to a concentrated lobbying effort by the large incumbent cable providers and telcos to stop competition. If you

look at the genesis of the state laws, the legislation that is being proposed is not being done to protect cities. The bills being introduced in recent years are almost all coming from ALEC, the conservative legislative mill. Many of the large incumbent providers are members and contributors to ALEC and their reward for membership has been the creation of ‘sample’ legislation of various sorts to further their nationwide goals – one of which is to stifle municipal competition.

3. The primary reason that this argument is fallacious is that cities fail at things all of the time and they don’t need to be protected. Cities routinely tackle civic projects that they think will benefit citizens or promote economic development and not all of these projects turn out as planned. There are numerous examples of cities failing at projects like golf courses, stadiums and business park development.

4. The idea that taxpayer money should not be put at risk to get faster broadband ignores the fact that cities are made up of voters and taxpayers. At CCG we have undertaken hundreds of broadband surveys to understand business and residential desire for better broadband. In many of the communities we have studied a significant majority of survey respondents want faster broadband and we have seen survey results that show positive sentiment ranging from 50% to over 90% in various communities. Cities are wholly justified to pursue something that the vast majority of their citizens tell them that they want. The states (prompted by the incumbent providers) should not be overriding the sentiments of local voters in a given community.

5. The ironic thing to me about the concept of protecting municipalities from failure ignores the fact that there have been far more failures of commercial fiber providers than the tiny handful of municipal ones. The telecom crash of 1999 – 2000 left the landscape littered with commercial failures of all sizes, some of them spectacular. But an interesting thing usually

happens when a fiber network fails – somebody normally buys the asset for pennies on the dollar and continues to use the fiber for the benefit of the community. Ask the citizens of Provo if they are sorry that their city built a FTTH network. That business venture failed but the fiber network is now operated by Google and is a success for the community. The same thing happens with most abandoned fiber – somebody else finds a way to take advantage of it. So normally the worst thing that happens when a municipal fiber venture fails is that the community ends up with a lot more fiber than they started with. Fiber is infrastructure and as such rarely goes to waste.

6. It's important for the FCC to understand how badly the citizens of some communities want broadband. Take the example of Leverett Massachusetts. This is a town that does not have a landline broadband provider and has had to make do with dial-up and satellite broadband. The citizens there not only voted to build a fiber network, they approved an increase in property taxes to pay for it. The idea that citizens can't use tax money to do something like build a fiber network is preposterous. Voters choose different ways to spend their tax money all of the time. This is usually done through the actions of elected local officials, but often it's done through referendums where voters directly choose to spend tax money on specific projects. If voters can elect to spend tax money on schools, libraries, water systems, electric utilities, roads and parks they ought to be able to spend it on broadband infrastructure.

7. Infrastructure is what cities and governments do. In this country we have handed the responsibility for a lot of basic infrastructure to governments, so building and maintaining infrastructure is one of their primary functions. Almost all roads are owned by governments. Most water systems are owned by governments. Most schools are owned by governments. When you get to more rural areas you find that even more infrastructure is owned by governments because they fill in the gap and build what somebody else hasn't or won't build. So you will find

businesses like municipal electric companies. It has been my experience that cities don't compete and build infrastructure that they don't think is needed. I think that every city I know that has built fiber did it because it either saved them a lot of money or else because the incumbents would not build what they think is needed. Cities are generally loath to compete unnecessarily and every city I know in the fiber business first tried to get the incumbents to build the needed fiber network. Cities usually only tackle building fiber when they are convinced that they don't have any other option.

8. Fiber is also for economic development. A lot of communities feel pushed into building fiber to keep the existing businesses they have from leaving. Economic development is not just about attracting new business - it's also about keeping existing jobs. So when a small town builds fiber to a factory or a business that is a significant employer in their community it's a big deal. I have consulted with over a hundred municipalities that have built some fiber and almost every one of them has an economic development success story. The FCC currently has another docket open that is looking at the definition of broadband. In that docket the debate is whether broadband ought to remain defined as 4 Mbps download or increased to something faster. But that discussion in that docket is mostly about residential customers and does not recognize that most rural areas have at least a few businesses that hire a lot of the people in the area, be that a factory, a mining operation or a call center. It is horrifying for a small community to watch one of their primary employers relocate to get fiber connectivity. I know it happens because in the places where cities are allowed to build fiber they have been able to save many such companies from leaving. When there is a ban against a city solving this kind of problem you might as well just start ringing the death knell for that city, because when a small town loses too many jobs they usually decline and slip into obscurity.

9. I'm not entirely sure that the FCC fully understands what it's like living without broadband in small town America. There are some little towns in the country that have great broadband, usually those being served by a municipality, an independent telephone company or an electric cooperative. But the majority of small towns are served by the same large telcos and cable companies that serve most of the country, and these are the entities that in this docket are arguing against any form of municipal competition. Many of the incumbent providers do a decent job in metropolitan areas. But they don't invest in small town America. They don't invest in the wires and barely maintain the wires that are already there. They don't invest in electronics and the rural networks are served by cable or DSL technology that is often decades out of date and is not being updated. The big carriers don't even invest in people, and in rural areas the large companies have shut down service centers and businesses offices and drastically cut back on staff. And when rural customers with these outdated and poorly maintained facilities call customer service they get service that is notoriously the worst in the country compared against all industries.

10. So people in the small towns suffer with out-of-date DSL or cable modems being delivered over old wires. Or if they live outside these small towns they suffer even more with dial-up or satellite data. They often wait many days or even weeks to get problems fixed. Their providers tell them that there are no plans to upgrade them. They fall further and further behind the broadband offered in larger cities each year. I think it's important in this docket to face the truth. The large telcos and cable companies are never going to make the investment in broadband in small town America. And yet they are here in this docket, most of them filing comments through trade groups so that they don't generate comments that can be cited to their customers. I certainly hope this FCC doesn't side with the large companies on this issue. This docket would

not even be open if the incumbent providers did a great job or even a fair job in small town America. The customers that Wilson and Chattanooga are asking to serve are these neglected customers that the incumbents won't serve. But the incumbents are willing to keep milking revenues out of ancient networks and will do anything to squash competition. If the FCC doesn't grant this petition then you are voting against people without broadband and for the big companies, because if Wilson and Chattanooga aren't allowed to expand as they are requesting, then it's likely that the customers those expansions will serve won't get real broadband for decades to come, if ever. And as has been asked by many filers in the docket, hopefully the FCC can order this everywhere instead of just agreeing to these two petitions.

III. Municipal Broadband Has Not Been a Failure

11. Numerous parties in the docket have used the argument that municipal broadband should not be allowed because it has been such a huge failure. Nothing could be more false. The naysayers in the docket have cited the same handful of cities as examples of this failure, and in doing so they have ignored the many examples of municipal success with fiber. I don't know the exact number, but I've read that there are around 150 municipalities now that have constructed fiber to most of all of their communities. The vast majority of these are successful. There are many hundreds of more municipalities that have built fiber to connect city facilities together including their utilities, schools and governments. These communities have saved their communities a lot of money over the years by owning their own fiber infrastructure. And within those many hundreds there are a lot of communities that have extended the fiber to bring broadband to a few businesses, a business park, or a downtown business district as a way to help to keep their small-town businesses healthy. Almost every city that has built fiber thinks it has

been a success, including some of the ones that have been cited in comments as examples of failure.

12. It is impossible to deny that there have been some failures of municipal fiber networks. But even among the tiny handful of municipal fiber projects cited in this docket, some are not failures. Take the example of Lafayette, Louisiana. The Free State Foundation, ICLE and the ITTA have all cited them as an example of a municipal failure, and imply that Lafayette's failure is somehow a reason to not let other municipalities into the fiber business. The City operates the fiber business under the name of LUS Fiber and I know their business to be a success.

13. LUS Fiber is one of my clients and I have worked with them since before they got into the fiber business. Consider the following facts about the success of LUS: Customer revenues at LUS Fiber cover all the costs of the business - LUS Fiber generates enough cash from sales to cover all operating expenses, cover all debt payments and to cover all current capital requirements. The business operates with zero subsidies and this has been verified through several audits done by the Louisiana Public Service Commission. LUS Fiber has attracted numerous new businesses and numerous new jobs to the city. LUS Fiber has brought significant customer savings to both residents and businesses, and competition means that every customer in the city saves money, even those who use somebody else. LUS Fiber now offers gigabit speeds to every residential and business customer in the city. I find it a bit ironic that the companies that say that LUS is not a success can't offer anything close to gigabit data speeds.

14. The idea that LUS is not a success comes from a paper written by Steven Titch of the Heartland Institute, who was referenced in footnote 3 of the Free State Foundation's comments. This is worth noting because Mr. Titch and the Heartland Institute are known in the industry for

writing this kind of for-pay report about municipal broadband providers. I remember years ago he wrote one about the failure of Bristol Virginia Utilities, which filed comments in this docket and which operates a very successful fiber business. I can only speculate that Mr. Titch and Heartland are funded by the cable industry to write these kinds of negative reports that are then cited in state and federal proceedings like this one as ‘proof’ that municipal fiber is a failure. I’ve read his report on LUS and it is chock full of untruths, half-truths and innuendo. I would certainly hope that the FCC wouldn’t somehow come to the conclusion that LUS Fiber is a failure due to Mr. Titch’s report.

15. Interestingly, a number of the firms that are cited as failures in this docket are municipal fiber systems that operate in states that have restrictions against municipal competition. Provo and Utopia in Utah are a prime example of this. The state of Utah has a restriction against municipal fiber providers offering any retail services. This means that any municipality that builds fiber there must operate a wholesale network, meaning that a city can build the network but then must let other companies provide the retail services like broadband and cable TV. The wholesale model, also known as open access, is something that opponents to municipal networks often promote, and in this docket WISPA asks the FCC to require all municipal networks to be open access. I have created hundreds of financial business plans for fiber businesses of all sorts, both municipal and commercial. I have been asked to study the open-access model a few dozen times and I have never found an open-access financial model that will produce profitability for both the network provider and the retail provider.

16. I could write an entire paper about why open access doesn’t work in the country as a business plan. But in short there are a few reasons why it doesn’t work. First, the act of setting a price for a wholesale connection leads to cherry picking. For example, if a city sets a price for a

wholesale connection at \$30 per month, then the retail providers using that network won't sell any package to customers that doesn't cover that cost, and so perhaps they would only sell to customers who buy \$75 worth of products. The more the network owner charges, the more pronounced the cherry picking (and the fewer households that get served). The second issue is that in the US there are very few quality service providers that will operate on an open access network. While the incumbent providers always push for open access for municipal networks, there is not one example in the country where one of the major telco or cable companies have agreed to provide ubiquitous services on an open access network. There is no Comcast or Verizon or AT&T or any other large incumbent that will sell to customers using somebody else's network in an open-access environment. In Europe, by contrast, most of the incumbent providers will offer services over open access networks and those networks sometimes attract dozens of competitors. In Europe this competition means that large number of customers are attracted to the network and the network owner can charge a lower price and avoid the cherry-picking dilemma.

17. Provo and Utopia may have been unwise to enter the open access fiber business because Utah had this restriction against them providing retail services. This particular state restriction cripples the opportunity for these two businesses to succeed. And there are similar restrictions requiring open access in states like Washington, Colorado and Virginia. What is surprising to me is that even with these restrictions there are cities in those states that are moving forward and building fiber networks. I find it ironic that most of the cities cited by the commenters in this docket as failures are operating in states where the municipal providers are fighting the same kinds of legislative roadblocks that Wilson and Chattanooga are facing. I think

that all cities are asking for is the chance to compete on a level playing field with the incumbents.

IV. The Incumbents Will Take Care of It

18. Several comments have made the argument that municipalities should not be allowed to operate because the incumbent providers will eventually bring the broadband that communities need. I think that many people will acknowledge that the large incumbent providers do a decent job of providing broadband in many metropolitan areas, particularly those places that have some competition. But even in cities I hear about neighborhoods with terrible broadband.

19. As fair or good that broadband might be in larger cities, there is not a lot of broadband investment happening in small town America. Consider the following about each of the technologies used to supply small-town America with broadband:

- The large telcos are working towards a future where they divest themselves of copper. Both AT&T and Verizon have made it clear to the FCC that they want to get out of the copper business, and in the near future. For many small towns this means that customers will lose DSL and in most towns will only have one alternative – the cable company. In rural areas these carriers are contemplating moving customers to cellular data, which is much more expensive than DSL and which today has severe data caps.
- Rural cable systems rarely offer the same bandwidth that is available on urban networks. Rural cable systems usually are built with a relatively low level of overall bandwidth and it is expensive to upgrade them. Such upgrades often involve building more fiber and replacing older coaxial cable. There are still numerous rural cable systems that offer no broadband, and many more that still operate at the first generation of DOCSIS, meaning data speeds of only a few Mbps download.

- Some rural markets are lucky enough to have a fixed wireless provider, most using some portion of the unlicensed spectrum to provide broadband. I was a customer of this technology for the last decade and was quite appreciative of getting the broadband in a remote place. But the WISPs that offer rural broadband are generally smaller companies and often undercapitalized. One of the biggest challenge for rural WISPS is that they really need to be connected to a fiber network if they are to supply real broadband, and affordable fiber connections are still somewhat or a rarity. And unfortunately for WISPs, the equipment for these wireless networks must be replaced on a regular basis and it's going to be hard for many of them to keep viable for the long run.
- Most of rural America can be served by satellite broadband. With recent changes in technology the download speeds of satellite broadband have improved. But satellite broadband is expensive and it comes with severe data caps that mean that a satellite household cannot use broadband the same as a terrestrial customer. It takes very little video, for example, to hit the monthly data cap.

20. I just don't see any of the incumbent companies investing in rural America, in the kind of market that was built by Wilson. Small town America has already suffered for a decade by having inferior broadband and communities there have come to realize that if they don't take care of themselves that nobody else is going to do it. I frankly can't understand the vehemence that the incumbents have towards municipal competition in rural areas. In most cases the municipals want to build in places where the incumbents are not willing to make an investment. And yet they fight them tooth and nail and cook up dozens of reasons why municipal broadband is a bad idea.

V. Looking into the Near-Future

21. When looking at the issue of municipal competition we can't just look at the rural broadband landscape today, as bleak as it may be. Already today there are hundreds of communities where the fastest broadband is barely in the range of 4 Mbps download, the FCC's current definition of broadband. And even in such towns there are usually many customers who get less. But we don't have to look very far into the future to see a time when that small level of broadband is going to feel as slow as dial-up feels today.

22. Broadband engineers and business owners know of the many maxims that talk about how the technology used for computing and broadband is improving at exponential rates. Almost everybody in the industry is familiar with Moore's law that says that computer-processing power is doubling every eighteen months and has done so for decades. But there are a whole lot of other similar examples of exponential growth that affect broadband. Things like data center costs, power consumption, and computer memory and storage are also improving at exponential rates. There are numerous companies that track US bandwidth usage and companies like Cisco and Sandvine have shown that the aggregate amount of bandwidth needed by a household (volume, not speed) is increasing at a rate of 40% per year (or doubling every three years).

23. It's really easy to underestimate the nature of exponential growth. But if computers and the related technologies double in power / speed / capacity every 18 months, then by 2025 the computers we use will be 64 times more powerful than the ones we use today (which is also true of today compared to 2005). But carry that out 19 years and the computers of 2033 will be 8,192 times more powerful than those of today. That is a mind-boggling number, but that's how exponential growth works. We've already seen this kind of growth in the past and a

smartphone today is considerably more powerful than the Cray-1, the first supercomputer of the 1970s. There is no reason to think that any of these trends are going to slow down over the short horizon of twenty years. Scientists and engineers have continued to find new techniques and technologies to keep these trends going. I write a daily tech and industry blog at <http://potsandpansbyccg.com/> and I routinely report on the amazing technology breakthroughs that seem to pop up every month.

24. The whole point of this discussion on exponential growth is that the broadband infrastructure - particularly in the rural areas - is massively inadequate for the future that we are going to be seeing even ten years from now, let alone twenty years from now. Sandvine reported that in the first half of 2014 that the average US household used an accumulated 51.4 gigabytes of download, up from 44.5 gigabytes just six months earlier. If you assume that the amount of household download desired will continue to increase at 40% per year, the average home ten years from now is going to be using over a terabyte of monthly data, and twenty years out they will use a mind-boggling 30 terabytes. That may sound fantastic, but we have already experienced this kind of growth if we start measuring broadband usage from the time when the average home used AOL dial-up.

25. I think it's pretty clear that existing networks in small town and rural America won't be ready to allow each household an average of a terabyte of monthly download ten years from now, and that is not some distant unimaginable future. Note that the terabyte would be the trended average and there will be some homes that will want a lot more than that. Even today, Sandvine reports that the top 15% of homes already download an average of 212 gigabytes per month. You can bet that not many of those homes are in small town or rural places due to the inadequate networks in place today.

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